

WHAT IS CLAIMED IS:

1. A vacuum processing apparatus, comprising:
 - a processing chamber, which accommodates a processing substrate, in which processing is performed on the processing substrate under a vacuum atmosphere;
 - a transfer chamber connected to said processing chamber with an opening/closing mechanism interposed therebetween;
 - a transfer mechanism which is provided inside said transfer chamber and which transfers the processing substrate;
 - a vacuum pump which evacuates the inside of the transfer chamber to a vacuum atmosphere;
 - an opening/closing valve interposed between said transfer chamber and said vacuum pump; and
- 15 a control device which closes said opening/closing valve and pauses operation of said vacuum pump when operation of said transfer mechanism is paused for a predetermined time or longer.
2. The vacuum processing apparatus as set forth in claim 1,
20 wherein the predetermined time is a time in which an amount of power to be reduced during a pause time of said vacuum pump is larger than an amount of extra power needed when restarting said vacuum pump.
- 25 3. The vacuum processing apparatus as set forth in claim 1,
wherein operation of said vacuum pump is paused after said control device closes said opening/closing valve and a predetermined time passes.

4. The vacuum processing apparatus as set forth in claim 1, further comprising:

a cassette chamber which accommodates a cassette capable of accommodating a plurality of the processing substrates and which is connected to said transfer chamber with an opening/closing mechanism interposed therebetween.

5. The vacuum processing apparatus as set forth in claim 4, further comprising:

an alignment mechanism which performs alignment of the 10 processing substrate,

wherein said transfer mechanism transfers the processing substrate from said cassette chamber to said alignment mechanism, and transfers the processing substrate to said processing chamber after the alignment is performed.

15 6. The vacuum processing apparatus as set forth in claim 1,

wherein said processing chamber is configured to generate a plasma by applying high-frequency power thereto; and

20 wherein said control device closes said opening/closing valve and pauses operation of said vacuum pump when the high-frequency power is applied and said transfer mechanism is paused for a predetermined time or longer.

7. The vacuum processing apparatus as set forth in claim 1,

25 wherein a plurality of said processing chambers are provided.

8. The vacuum processing apparatus as set forth in claim 1,

wherein said processing chamber is an etching processing

chamber which performs etching on the processing substrate.

9. A substrate transfer method of transferring a substrate by a transfer mechanism inside a transfer chamber configured to have a vacuum atmosphere by a vacuum pump connected thereto with an opening/closing valve interposed therebetween, the substrate transfer method comprising:

closing the opening/closing valve and pausing operation of the vacuum pump when operation of the transfer mechanism is paused for a predetermined time or longer.

10 10. The substrate transfer method as set forth in claim 9, wherein the predetermined time is a time in which an amount of power to be reduced during a pause time of the vacuum pump is larger than an amount of extra power needed when restarting the vacuum pump.

15 11. The substrate transfer method as set forth in claim 9, wherein the operation of the vacuum pump is paused after the opening/closing valve is closed and a predetermined time passes.

12. The substrate transfer method as set forth in claim 9, wherein a processing chamber is connected to the transfer chamber with an opening/closing mechanism interposed therebetween, the processing chamber being configured to generate a plasma by applying high-frequency power thereto; and

wherein the opening/closing valve is closed and the operation of the vacuum pump is paused when the high-frequency power is applied and the operation of the transfer mechanism is paused for a predetermined time or longer.

25 13. The substrate transfer method as set forth in claim 12, wherein the processing chamber is an etching processing

chamber which performs etching on a substrate.